

# Approach to nodular thyroid disease

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# Approaching a patient with a thyroid lump



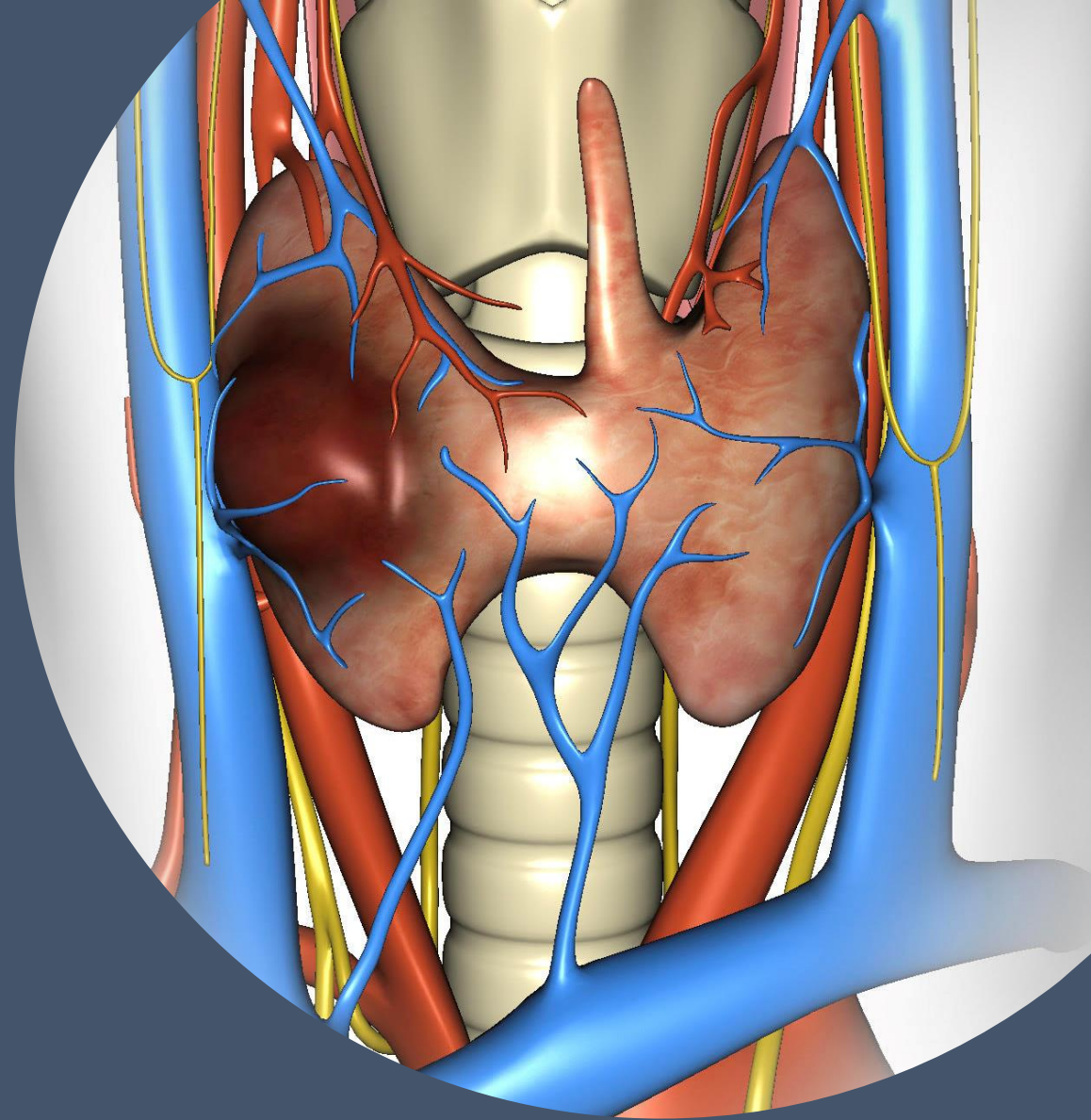
# Classification of thyroid diseases

- ◆ Enlargement of the gland
  - Goiters
  - Tumors
- ◆ Hyperthyroidism
  - Graves disease
  - Toxic multinodular goiter
  - Toxic adenoma
- ◆ Hypothyroidism
  - Hashimoto thyroiditis
  - Subacute thyroiditis
  - Riedel thyroiditis
  - Congenital "Cretinism"

- **Two main concerns:**

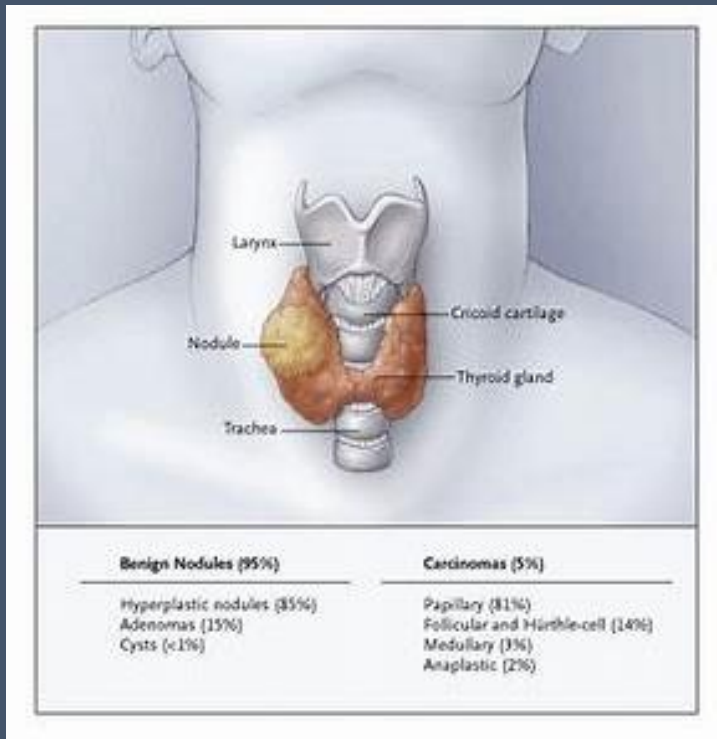
1. Nature

2. Compressive symptoms



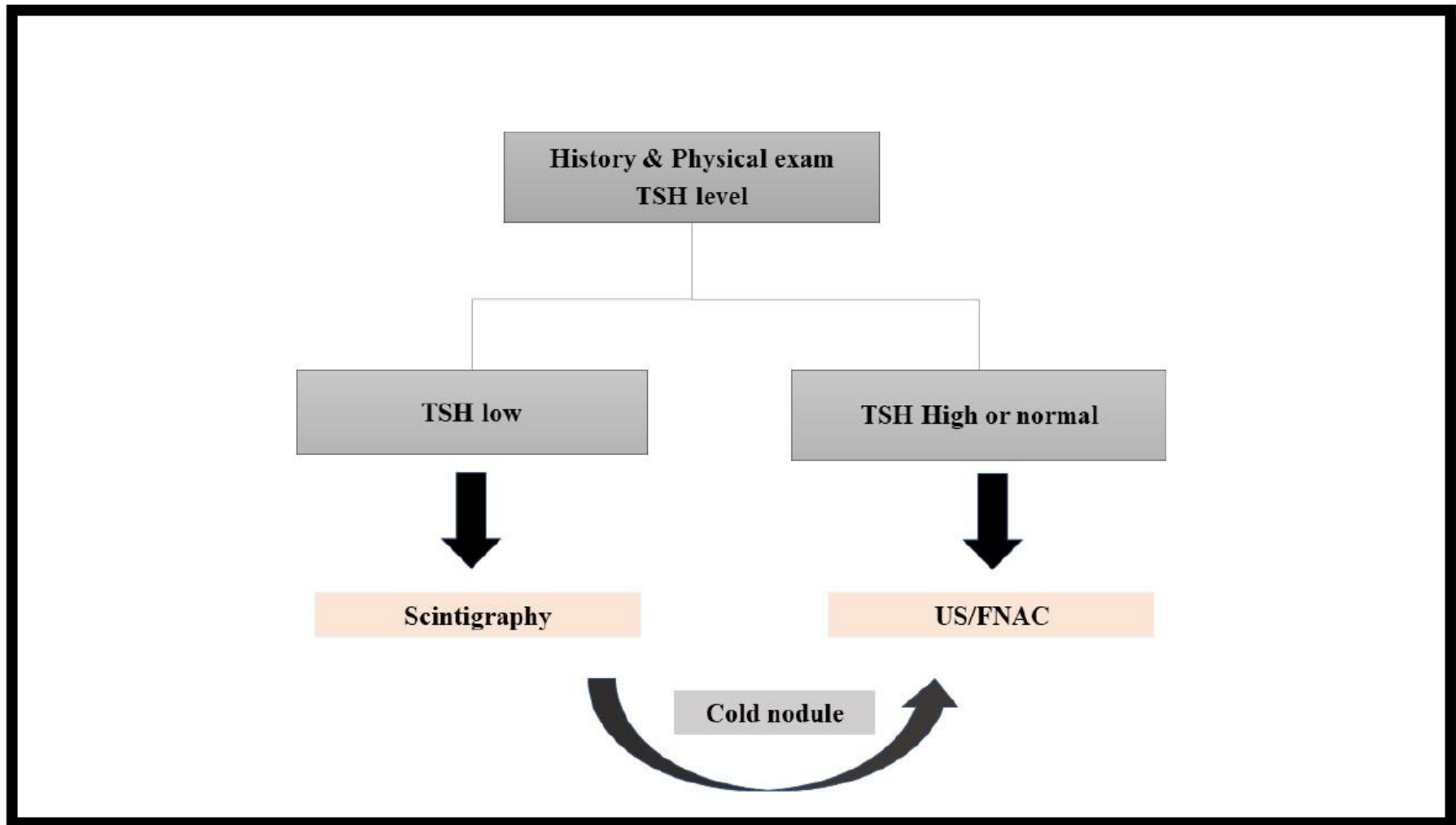
• **90%-95% Benign nodules; most commonly hyperplastic nodule, adenoma, cyst**

• **5% - 10% Malignant (PTC, FTC, MTC, ATC, Lymphoma)**



***PTC: most common & least aggressive***

***ATC: least common but most aggressive***

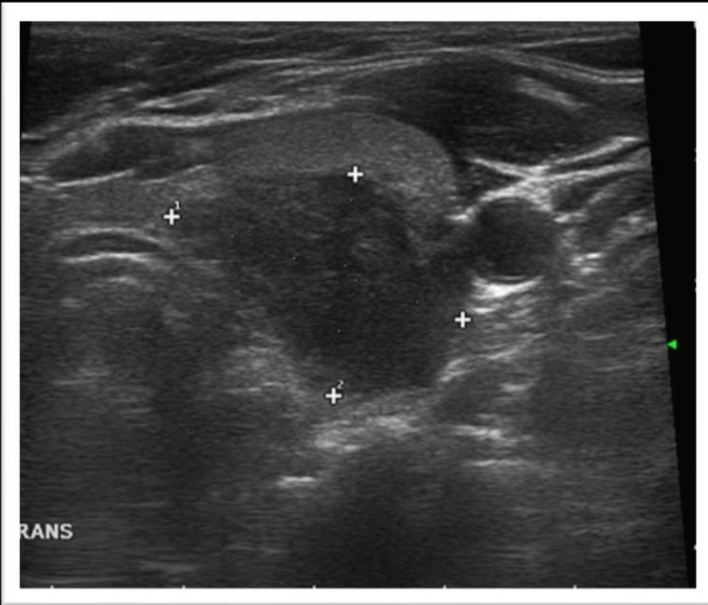


**Figure 1.** Initial diagnostic evaluation of a patient with a thyroid nodule.

Neck US is an essential component of the diagnostic evaluation of nodular thyroid disease. It is easily performed, non-invasive, fast, not costly, and highly sensitive for thyroid nodules. It is more reliable than physical examination and provides valuable information that could considerably influence management decisions

# US features considered highly suspicious for malignancy include:

Irregular margins, Taller-than-wide shape, and the presence of microcalcification



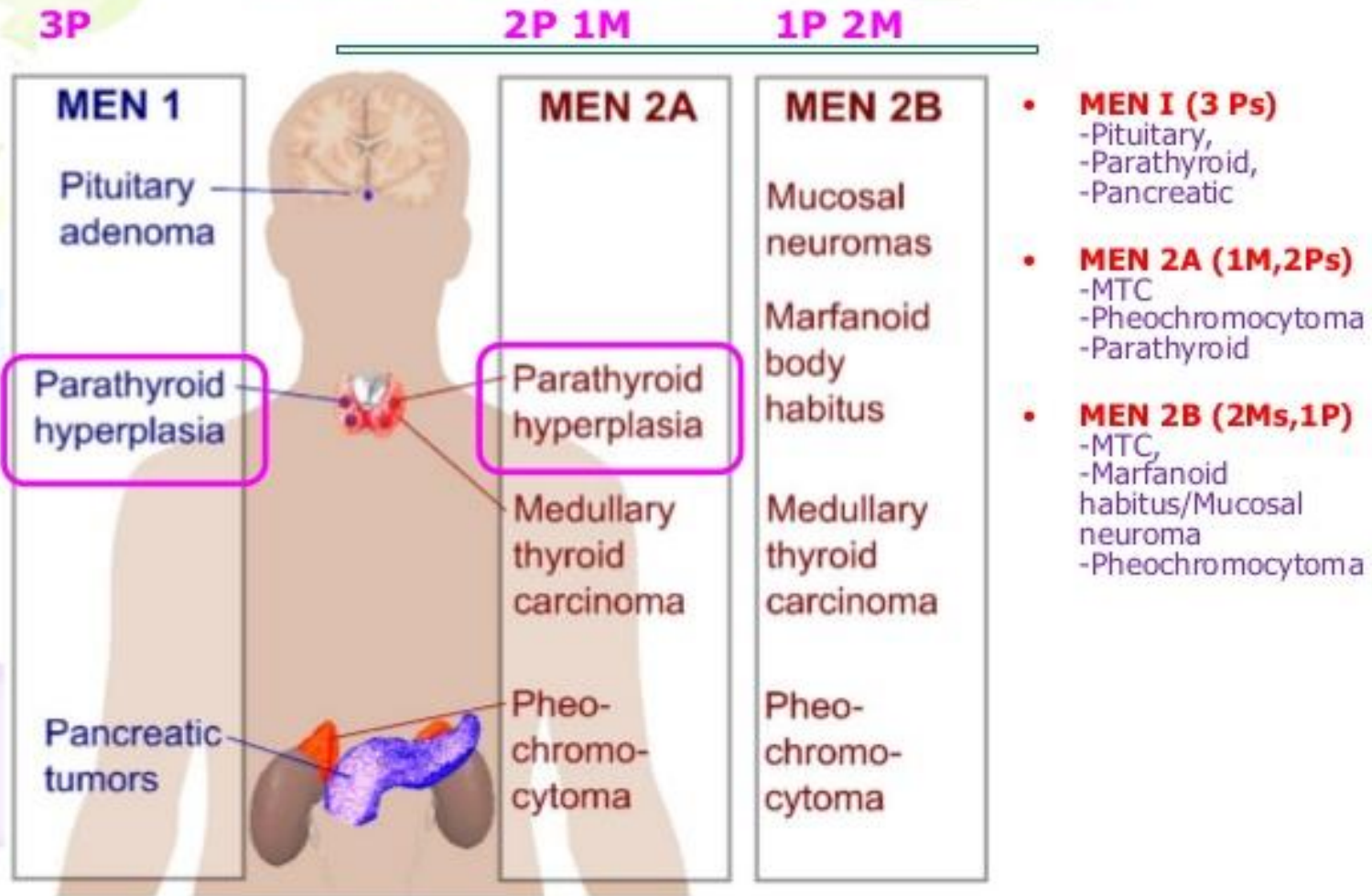


FNAC is the gold standard modality for determining the nature of a thyroid nodule. It is simple, safe and cost-effective. Procedure related complications, such as pain or hematoma, are uncommon and usually minor.

**Table The Bethesda system for reporting thyroid cytopathology (BSRTC): diagnostic category, implied risk of malignancy (ROM), and recommended clinical management**

<i>Diagnostic category</i>	<b>ROM</b>	<b>Recommendation</b>
<i>I</i>	1-4%	Repeat FNAC with ultrasound guidance
<i>II</i>	0-3%	Clinical and sonographic follow-up
<i>III</i>	5-15%	Repeat FNAC
<i>IV</i>	15-30%	Lobectomy
<i>V</i>	60-75%	Near-total thyroidectomy or lobectomy
<i>VI</i>	97-99%	Near-total thyroidectomy

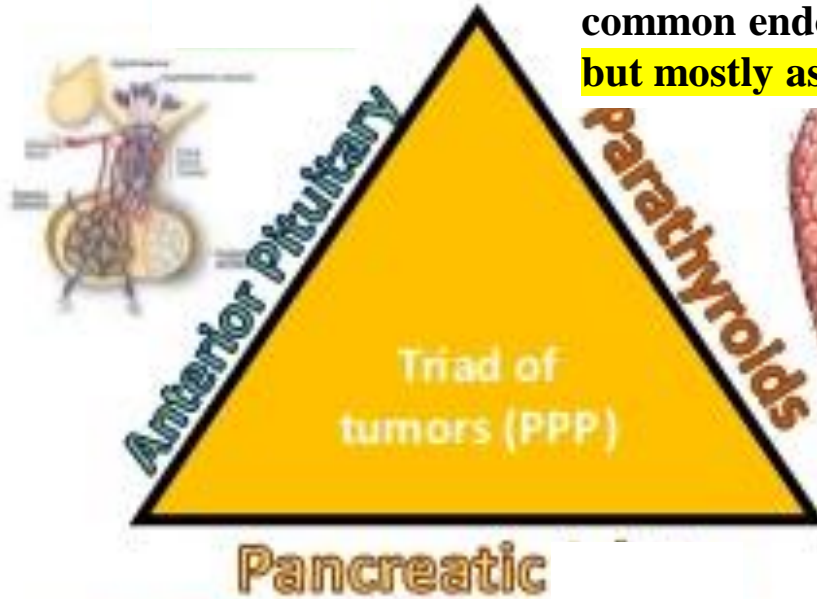
# MEN Syndrome\_ Autosomal dominant



# MEN Type 1

aka “**WERMER’S SYNDROME**”

Hyperparathyroidism (most common endocrinopathy; but mostly asymptomatic)



Pancreatic Endocrine Neoplasm (PEN) 2<sup>nd</sup> most common endocrinopathy

Most common PEN is Non-functional PEN

Most common functional is Gastrinoma followed by Insulinoma

(Most common manifestation of MEN I is PUD- ZES)



**0.25%**  
prevalence (random post-mortem studies)

**All age groups**  
Range: 5-81 years

**5<sup>th</sup> decade**  
Majority of the dev't of clinical and biochemical manifestations

**50% probability of death by 50 years**  
Absence of treatment= earlier mortality

**Malignant tumor:**  
**Usual cause of death**  
Often from a pancreatic NET or foregut carcinoid

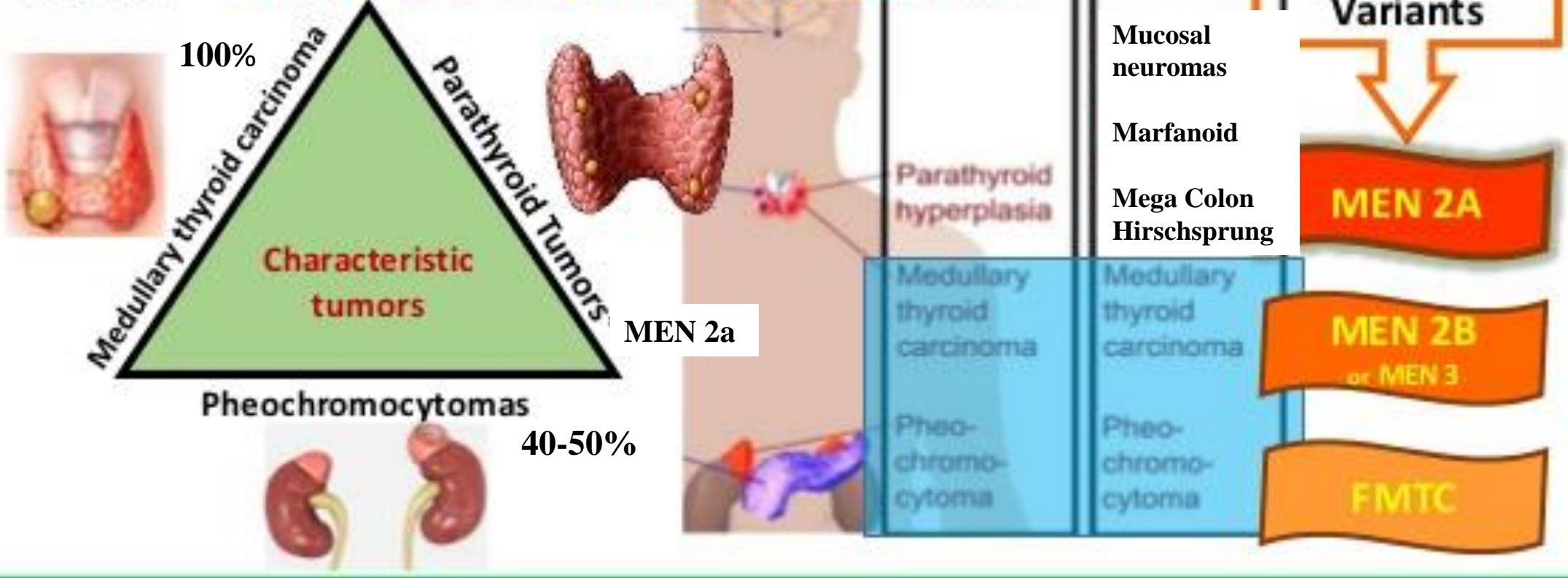
**MEN I: mutation in a tumor suppressor gene (Menin) located on Ch. 11 (loss of function mutation).**

**Most common pituitary tumor: prolactinoma, followed by GH-adenoma**

**Prolactinoma (women: galactorrhea & amenorrhea) (men: hypogonadism)**

# MEN Type 2

aka "SIPPLE'S SYNDROME"



## Medullary Thyroid Carcinoma

- ❑ the most common feature of MEN 2A and MEN 2B and occurs in almost all affected individuals

Most common cause of death

## Pheochromocytomas

- ❑ occur in >50% of patients with MEN 2A and MEN 2B
- ❑ major cause of morbidity and mortality

Mutation in a proto-oncogene gene on Ch. 10 (RET gene); gain of function mutation

# MEN II b

